



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,892	12/08/2003	Jun-Won Kang	1568.1080	9667
49455 7590 02/23/2007 STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			EXAMINER LAIOS, MARIA J	
			ART UNIT	PAPER NUMBER
			1709	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/23/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/728,892

Applicant(s)

KANG ET AL.

Examiner

Maria J. Laios

Art Unit

1709

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :20060912, 20050606, 20050301, 20031208.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-8 are unclear as what is intended by “at least one edge of the first electrode plate and the second electrode plate to have portions of the same electrode plate face each other.” Does this mean both or either of the plates? In order to examine the claim on its merits, this has been interpreted as meaning that one of the electrode plates has a folded portion.

Claim 6 is unclear as to what is indicated by the second electrode plate is positioned at one side of at least a portion of the first electrode plate where the first electrode tab is disposed. In order to examine the claim on its merits, this has been interpreted, as the second electrode tab is not in alignment with the first electrode tab and a separator is positioned between the first and second electrode.

Claim 7 is unclear as to what is meant by corresponding to the first electrode tab of the first electrode plate. In order to examine the claim it has been taken into account in the broadest sense that there is an insulating tape on the second electrode and that there is a first electrode tab of the first electrode plate in the electrode unit.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3-6, 9-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Takeuchi (US Patent 6,951,576 B1).

With respect to claim 1, Takeuchi discloses an electrode unit comprising a first electrode plate (62, anode) having a first electrode uncoated portion on a least one side of the a first electrode collector coated with a least a first electrode active material (col. 4 lines 33-35); a second electrode plate (64, cathode) having a second electrode uncoated portion on at least one side of a second electrode collector coated with at least a second electrode active material (col. 5 lines 33-37, by removing the cathode material it is an exposed area); a separator (66) interposed between the first electrode plate (62) and the second electrode plate (64), wherein a folded portion is provided on at least one edge of the first electrode plate and the second electrode plate to have portion of a same electrode plate face each other (col. 4 lines 53-54 and figure 7, where 62 is the anode and 66 is the separator material).

With regard to claim 3, Takeuchi discloses the folded portion is provided at the uncoated portion of either the first or the second electrode plate (col. 4 lines 33 –35 discloses that the lithium is only on one side of the screen).

With regard to claim 4, Takeuchi discloses the folded portion is provided at a winding start portion of either the first or the second electrode plate (col. 4 lines 50-54).

With regard to claim 5, Takeuchi discloses the folded portion is folded such that a burr portion at an edge of either the first or the second electrode collector contacts a same polarity (col. 3 lines 63-67 and col. 4 lines 1-3 takes into account a defect or tear in the separator where upon the folded portion comes into contact with itself thus preventing a short circuit).

With regard to claim 6, Takeuchi discloses the folded portion of the second electrode plate is position at one side of at least a portion of the first electrode plate where the first electrode tab is disposed, wherein the separator is interposed between the folded portion and the first electrode plate. Figure 10 shows the anode tabs 120/122 at the opposite end of cathode tabs 86/88 the folded portion can either be the anode folded on the anode or the cathode folded on the cathode in col. 4 lines 7-12.

With regard to claim 9, Takeuchi discloses an electrode unit having a first electrode plate (62 anode) having a first electrode uncoated portion on at least one side of a first electrode collector coated with at least a first electrode active material, (col. 4 lines 33-35) a second electrode plate (64 cathode) having a second electrode uncoated portion on at least one side of a second electrode collector coated with at least a second electrode active material, (col. 5 lines 33-37, by removing the cathode material it is an exposed area) and a separator (66) interposed between the first electrode plate and the second electrode plate (col. 4 lines 53-54 and figure 7, where 62 is the anode and 66 is the separator material); and a case accommodating the electrode unit to be sealed, and having a terminal portion electrically connected to the electrode unit (col. 2 lines 65-66).

Art Unit: 1709

With regard to claim 10, Takeuchi discloses a folded portion is provided at the uncoated portion of either the first or the second electrode plate is disclosed in col. 4 lines 33 –35.

With regard to claim 11, Takeuchi discloses the folded portion is provided at a winding start portion of either the first or the second electrode plate (col. 4 lines 50-54).

With regard to claim 12, Takeuchi discloses the folded portion is folded such that a burr portion at an edge of either the first or the second electrode collector contacts a same polarity (col. 3 lines 63-67 and col. 4 lines 1-3).

With regard to claim 13, Takeuchi discloses the folded portion of the second electrode plate is position at one side of at least a portion of the first electrode plate where the first electrode tab is disposed, wherein the separator is interposed between the folded portion and the first electrode plate. Figure 10 shows the anode tabs 120/122 at the opposite end of cathode tabs 86/88 the folded portion can either be the anode folded on the anode or the cathode folded on the cathode in col. 4 lines 7-12.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1709

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 2, 7, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi, as applied to claims 1, 6, 9 and 13 above, and in further view of Iwasaki et al. (6,325,611 B1).

With regard to claims 2 and 16, Takeuchi discloses a folded portion of the electrode plate but he does not teach an insulating tape attached to the folded portion. Iwasaki also discloses a secondary battery, which includes an insulating tape attached to the electrode. Iwasaki discloses an insulating tape affixed to the electrode (16 Figure 3) to prevent a short circuit from occurring (col. 13 lines 63-67, col. 14 lines 1-3). It would have been obvious to one ordinary skill in the art at the time of the invention to apply the insulating tape of Iwasaki to the folding portion of Takeuchi in order to prevent a short circuit.

With regard to claims 7 and 14, Takeuchi discloses an electrode being folded but he does not disclose an insulating tape. Iwasaki discloses a spirally wound cell with two electrodes and insulating tape. The insulating tape (16, in Figure 3) is located on the second electrode plate (1, positive electrode) with a separator (3) positioned between the first electrode (2 negative electrode) and the second electrode (1, positive electrode) and the negative electrode collector having a tab (15 lead member) associated with it thus the insulating tape would prevent a short

Art Unit: 1709

circuit (col. 13 lines 63-67, col. 14 lines 1-3). It would have been obvious to one of ordinary skill in the art at the time of the invention to add the insulating tape of Iwasaki to the folded portion of Takeuchi to prevent a short circuit.

7. Claims 8, 15, 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi, as applied to claims 1 and 9 above, and further in view of Narukawa et al (US 5,508,122).

In claims 8 and 15, Takeuchi does not address the length of the second electrode uncoated portion positioned at the innermost part of the electrode unit is 5 to 15mm. Narukawa discloses a battery with a spiral wound electrode unit in which the electrode is prepared by not applying the slurry from the end of the foil to approximately 20 mm inboard (col. 2 lines 30-33). In the process of fabricating the electrode, Narukawa removes the step of scrapping off the active material. It would have been obvious to one of ordinary skill in the art at the time of the invention to fabricate the electrode of Narukawa with an exposed region instead of scrapping the active material from the plate as proposed by Takeuchi for the purpose of attaching a lead directly onto the plate (col. 2 lines 33-36). Since the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

For claims 17 and 18, Takeuchi discloses a folded portion of the electrode however he does not disclose the first electrode plate is a negative electrode plate having a first electrode collector comprising a metal foil. Narukawa discloses a battery that addresses this in col. 2 lines 43-44. It is known in the art that the electrode collector comprises of a metallic form. Narukawa

Art Unit: 1709

states that the negative electrode has a copper foil core. It would have been obvious to of ordinary skill in the art at the time of the invention to use a metal foil (copper foil) as the electrode collector as is considered well known in the art as further exemplified by Narukawa and one would have a reasonable expectation of success in doing so.

For claim 19 and 20 Takeuchi discloses a folded portion of the electrode however he does not specifically disclose the active material for the first electrode active material comprises a carbon material. Narukawa also discloses an electrode unit in which the type of active material is a graphite powder in col. 2 lines 38-42. It would have been obvious to one of ordinary skill in the art at the time of the invention to use carbon (graphite) material as the active material on an electrode as is considered well known in the art as further exemplified by Narukawa and one would have a reasonable expectation of success in doing so.

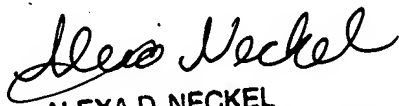
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria J. Laios whose telephone number is 571-272-9808. The examiner can normally be reached on Monday - Friday 7:30 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-9827. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1709

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJL 
ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER

ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER